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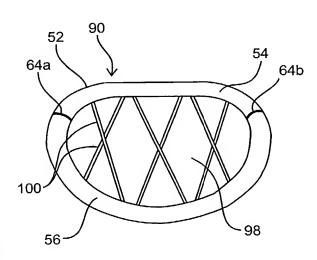
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(54) Title: ANNULOPLASTY RINGS AND METHODS FOR REPAIRING CARDIAC VALVES



(57) Abstract: Implantable devices and methods for repair of defective cardiac valves (10) are provided. The implantable devices include an annulaoplasty ring (52) and a restraining structure (98). The ring (52) includes an anterior segment (54) and a posterior segment (56). Transverse restraining members (100) transverse the major axis of ring (52) and are configured in a criss-cross pattern where each of the legs of the Xs is attached to ring (52).

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/21449

A. CLASSIFICATION OF SUBJECT MATTER				
IPC(7) : A61F 2/24				
US CL : 623/2.36				
According to International Patent Classification (IPC) or to both national classification and IPC				
B. FIELDS SEARCHED				
Minimum do	cumentation searched (classification system followed	by classification symbols		
	cumentation searched (classification system followed	by classification symbols)		
U.S.: 623/2.36, 2.37				
Documentation	on searched other than minimum documentation to the	e extent that such documents are included in	n the fields searched	
Electronic da	ta base consulted during the international search (nam	e of data base and, where practicable, sear	ch terms used)	
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G DOCUM CENTRO CONSTITUTO DO DEL DEL VIVANTE				
	UMENTS CONSIDERED TO BE RELEVANT			
Category *	Citation of document, with indication, where a		Relevant to claim No.	
X	US 6,419,695 B1 (GABBAY) 16 July 2002 (16.07.2	2002), see Figures 1, 4, 11, and 12	1, 22, and 23	
	where buttress (20) is the strut claimed.			
X	WO 01/47438 A1 (BESSLER et al) 05 July 2001 (05.07.2001), see Figures 9 and 10 as well 1, 22, and 23			
	as page 14 where template (106) has struts such that	the claim language is read upon.		
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Further	documents are listed in the continuation of Box C.	See patent family annex.		
* Special categories of cited documents: "T" later document published after the internation		mational filing date or priority		
		date and not in conflict with the application	ation but cited to understand the	
	defining the general state of the art which is not considered to be	principle or theory underlying the inve		
or particul	lar relevance	"X" document of particular relevance; the o	claimed invention cannot be	
"E" earlier app	plication or patent published on or after the international filing date	considered novel or cannot be consider		
"L" document	which may throw doubte on priority claim(s) or which is size \$45	when the document is taken alone	•	
	which may throw doubts on priority claim(s) or which is cited to he publication date of another citation or other special reason (as	"Y" document of particular relevance; the o	daimed invention cannot be	
specified)		considered to involve an inventive step	when the document is	
"O" document	referring to an oral disclosure, use, exhibition or other means	combined with one or more other such being obvious to a person skilled in the		
			aut	
	published prior to the international filing date but later than the	"&" document member of the same patent f	amily	
priority date claimed				
Date of the ac	ctual completion of the international search	Date of mailing of the international search	h report	
19 February 2	2005 (19.02.2005)	22 APR 200	n l	
		Authorized officer	A 11/1	
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US		CRails	as Vorley Mey	
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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/21449

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)			
This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:			
1. Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:			
Claims Nos.: because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:			
Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)			
Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)			
This International Searching Authority found multiple inventions in this international application, as follows: Please See Continuation Sheet			
 As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.: 			
4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: 1,22 and 23			
Remark on Protest The additional search fees were accompanied by the applicant's protest. No protest accompanied the payment of additional search fees.			

	International application No.	
INTERNATIONAL SEARCH REPORT	PCT/US04/21449	
BOX III. OBSERVATIONS WHERE UNITY OF INVENTION IS LAC	CKING:	
A "Invitation To Pay Additional Fees" was mailed to Applicant on January 11, 2 limit. Therefore, only the first claimed invention was examined. In particular or generic to all claimed species. For this reason, claims 2-21 and 24-31 were not examined.	only claims 1, 22, and 23 are drawn to the device and are	
This application contains the following inventions or groups of inventions which concept under PCT Rule 13.1. In order for all inventions to be examined, the appaid. However, no fee was paid so only the first invention was examined.I. Cla method of use.	oppropriate additional examination fees must have been	
This application contains claims directed to more than one species of the generic invention because they are not so linked as to form a single general inventive con species to be examined, the appropriate additional examination fees must have be	ncept under PCT Rule 13.1.In order for more than one	
The species are as follows: A.) Figure 2A B.) Figure 3A C.) Figure 3B D.) Figure 4C I.) Figure 4D J.) Figure 5A K.) Figure 5B L.) Figure 5C M.) 7A and 7B Q.) Figures 9A and 9B R.) Figures 10A and 10B S.) Figures 11A a Figure 17 W.) Figure 18 X.) Figure 19. Applicant is requested to select a speciread on the elected species. The following claim(s) are generic: Claims 1 and 22	Figure 5D N.) Figure 6A O.) Figure 6B P.) Figures and 11B T.) Figures 12A and 12B U.) Figure 16 V.) ries for examination above and then state which claims	
The inventions listed as Groups I and II do not relate to a single general inventive Rule 13.2, they lack the same or corresponding special technical features for the a ring with a ring configured for placement at a valve annulus having at least one at least of patents US 6332893, US 6419695, US 20030120340, US 20030033009 20030130731 show that this common special technical feature was know to the process of the same of the same of the process of the same	following reasons: The same special technical feature is strut extending over the interior area thereof. However, WO 01/47438, WO 87/05489, EP 026533, and US	
The species listed above do not relate to a single general inventive concept under species lack the same or corresponding special technical features as explained in t	PCT Rule 13.1 because, under PCT Rule 13.2, the the preceding paragraph.	